REMARKS

I. STATUS OF THE CLAIMS

In view of the above, it is respectfully submitted that claims 1-36, 49 and 50 are currently pending.

II. IMPROPER FINALITY

The outstanding Office Action was a first action after an RCE, and was made Final. It is respectfully submitted that the finality of the Office Action is improper.

More specifically, the Applicant submitted an RCE with the previous Amendment filed March 29, 2007. In the Amendment, new claim 50 was added. New claim 50 recites features that were not cited in any of the previously pending claims. In this situation, it is respectfully submitted that it is improper for the Examiner to make the Office Action final. Moreover, it is respectfully submitted that, in this situation, it is common practice within the USPTO that the first action NOT be made final.

Further, as indicated above, new claim 50 recites features that were not recited in any of the previously pending claims. Therefore, new claim 50 clearly raises new issues "that required further consideration and/or search." See MPEP § 706.07(b). In this situation, in accordance with MPEP § 706.07(b), the outstanding Office Action should not be made final.

It should be noted that, in the outstanding Office Action, the Examiner has not addressed the recitations in claim 50. More specifically, the Examiner has not indicated where the recitations in claim 50 are shown in the references.

On page 2 of the outstanding Office Action, the Examiner indicated that the Office Action was made final because "[a]ll claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 C.F.R. § 1.114 and could have been finally rejected on grounds and art of record." The Applicant respectfully disagrees.

As indicated above, in the Amendment filed March 29, 2007, the Applicant added new claim 50, which recites that in said detecting, an optical reading device captures an image of the component-embedded board and detects the actual position of the first electronic component based on the image. The performance of both of these features by an optical reading device

was not explicitly claimed in the previous claim set. The MPEP states that the claims of a new application may only be finally rejected in the first Office Action where:

> [A]ll the claims of the new application (1) are drawn to the same invention claimed in the earlier application, and (2) would have been properly finally rejected on the **grounds and art of record** in the next Office action if they had been entered in the earlier application.

MPEP § 706.07(b), emphasis added.

Neither Leedy nor Kulkarni, individually or in combination, disclose the features of claim 50. As indicated on page 4 of the Office Action, Leedy does not teach "imaging means and an optical reading device." Kulkarni discusses that "the inspection station 100 detects defects by comparing one die, on a pixel-to-pixel basis, with an adjacent die." There is no disclosure in Kulkarni of an optical reading device that both captures an image of the component-embedded board **and** detects the actual position of the first electronic component based on the image, as claimed. Further, the previous Office Action made no argument that that the art of record disclosed performing both these features in an optical reading device. Per MPEP § 706.07(b), the Examiner must demonstrate based on the previous Office Action **both** that claim 50 could have been properly finally rejected on the grounds **and** art of record.

As explicitly stated in the MPEP, both are required to make a first Office Action final, and neither does so here. As such, the Examiner **cannot** finally reject the claims on the grounds and art of record and the finality of the outstanding Office Action is improper.

Accordingly, it is respectfully requested that a new, nonfinal Office Action be issued by the Examiner.

III. ELECTION / RESTRICTIONS UNDER 37 C.F.R. § 1.142

Claim 49 stands withdrawn from consideration as being directed to a non-elected invention. The Office Action continues to maintain the restriction requirement, stating that "the process as claimed can be practiced by another and materially different apparatus such as a camcorder." See page 3, of the Office Action. The Office Action further states on page 5 that "[m]eans plus function language used in claim 49 is referring to an apparatus, while claim 1 'ing language is referring to steps. Therefore, they are different inventions." However, this assertion is contrary to the requirements set forth in the MPEP and the restriction requirement here is improper.

The Examiner may require a restriction if two or more "independent ***and*** distinct" inventions are claimed in one application. See MPEP § 802.01. The term "independent" means

that there is no disclosed relationship between the two inventions claimed. See MPEP § 802.01(I). The inventions must be ***unconnected*** in design, operation and effect. See *Id.* For instance, a process and an apparatus incapable of being used to practice the process are independent inventions. See *Id.* Two or more inventions are "related (i.e., not independent) if they are disclosed as connected in at least one of design (e.g., structure or method of manufacture), operation (e.g., function or method of use), or effect. Examples of related inventions include combination and part (subcombination) thereof, process and apparatus for its practice, process and product made, etc." *Id.*

The MPEP also requires, where two claims are determined to not be independent (which is clearly not the case with respect to claims 1 and 49 here), that the claims **also** be distinct. MPEP § 802.01(I) states:

> Related inventions are distinct if the inventions *as claimed* are not connected in at least one of design, operation, or effect (e.g., can be made by, or used in, a materially different process) and wherein at least one invention is PATENTABLE (novel and nonobvious) OVER THE OTHER (though they may each be unpatentable over the prior art).

Thus, there are two tests that must be satisfied before a restriction requirement can be proper.

The June 14, 2007 Office Action again states that claim 49 is "independent ***or*** distinct" from the invention originally claimed. The Applicant again respectfully points out that the MPEP requires that two inventions must be independent ***and*** distinct in order for a restriction requirement to be proper. Claim 49 is similar to claim 1, but is written in Means Plus Function format. See MPEP § 2181 and 35 U.S.C. § 112 ¶ 6. Claim 49 replaces the detecting, calculating and correcting language from claim 1 with a means for detecting, means for calculating and a means for correcting. As is commonly known, method and apparatus claims are permissible in the same application.

Further, some embodiments of the apparatus as recited in claim 49 could practice the method as recited in claim 1. As stated above and per MPEP § 802.01(I), **a "process and apparatus for its practice" can be claimed in the same application** because they are not independent. Thus, claim 1 and claim 49 are clearly not "independent and distinct" from one another as is required for a proper restriction requirement by Chapter 800 of the MPEP.

In view of the above, it is respectfully submitted that claim 49 is not independent and distinct from claim 1 and an election/restriction cannot apply. Accordingly, the applicant respectfully requests that the election/restriction be withdrawn.

IV. REJECTION UNDER 35 U.S.C. § 102(b) OF CLAIMS 1-2, 4-8, 11-13, 15 AND 17 AS BEING ANTICIPATED BY LEEDY (US 5,103,557)

Claim 1 recites calculating a displacement between the design position of said first electronic component and the actual position of said first electronic component on the surface of said board, and holding said displacement as first displacement data. See, for example, page 11, lines 2-6, of the application. Leedy fails to anticipate this feature as a displacement as claimed is not the same as a location as discussed in Leedy.

As stated in the Office Action on page 6, "Leedy discloses that 'the data resulting from the tester signal process is a list of the location of each defective transistors or ICLUs' (col. 5, lines 33-35)." Conversely, claim 1 recites calculating the ***displacement*** between the design position and the actual position of the component. See, for example, page 11, lines 2-6, of the application. Leedy only lists the ***location*** of defective transistors or ICLUs. See column 5, lines 33-35, of Leedy. Displacement can be defined as "the linear or angular distance in a given direction between a body or point and a reference position." See Dictionary.com, http://dictionary.reference.com/browse/displacement, Lexico Publishing Group (2007). On the other hand, location can be defined as "a point or extent in space." Dictionary.com, http://dictionary.reference.com/browse/location, Lexico Publishing Group (2007). As such, a location is a point whereas a displacement is a distance.

Because Leedy only determines which transistors and ICLUs are not accurately aligned per the CAD master placement scheme and interconnects redundant ICLUs to replace them, it never determines the displacement between the design position and the actual location of the component. See column 5, lines 3-43, of Leedy.

Claim 1 further recites correcting, based on said first displacement data, design data to be used for processing said board after said board is covered with said first insulating layer to form a wiring pattern connected to said first electrical component. See, for example, page 11, lines 2-5, page 14, lines 16-35, and Figs. 7 and 8, of the application.

In Leedy, the alignments are determined by using alignment patterns in predetermined positions on both the wafer being tested and the tester surface. See column 5, lines 3-7, of Leedy. The CAD means then works out an interconnect strategy, forming a net list of interconnect patterns to bypass defective ICLUs by interconnecting defect-free ICLUs from a stock of redundant ICLUs. See column 5, lines 37-43, of Leedy. Leedy discloses neither calculating a displacement nor correcting design data to be used for processing said board **after** said board is covered with said first insulating layer to form a wiring pattern connected to said

first electrical component.

Further, the ICLUs replaced in Leedy are admittedly defective. However, claim 1 recites that design data to be used for processing said board after said board is covered with said first insulating layer to form a wiring pattern **connected to said first electrical component.** Thus, the displaced electrical component is not defective. By replacing a defective ICLU with a redundant ICLU, Leedy teaches away from this feature of claim 1.

Claim 1 also recites forming via holes in the first insulating layer in accordance with the corrected design data, thereby compensating for the actual location of the displaced first electronic component in a subsequent layer. During a telephone conversation on July 2, 2007, the Examiner indicated that such a feature may patentably distinguish over the cited art. The Applicant provides further reasoning demonstrating the patentability of this feature over Leedy below.

In Leedy, the CAD means then works out an interconnect strategy, forming a net list of interconnect patterns to bypass defective ICLUs by interconnecting defect-free ICLUs from a stock of redundant ICLUs. See column 5, lines 37-43, of Leedy. Thus, Leedy wires a **redundant** ICLU to replace an ICLU that is defective. Leedy never forms via holes to compensate for the **actual location** of a **displaced** electronic component. Thus, claim 1 patentably distinguishes over Leedy.

The above comments are specifically directed to claim 1. However, it is respectfully submitted that the comments would be helpful in understanding various differences of various other claims over the cited reference.

In view of the above, it is respectfully submitted that the rejection is overcome.

V. REJECTION UNDER 35 U.S.C. § 103(a) OF CLAIMS 14, 16, 18-20, 22-26, 29-36 AND 50 AS BEING UNPATENTABLE OVER LEEDY (US 5,103,557) IN VIEW OF KULKARNI ET AL (US 5,991,699).

Claim 19 discloses calculating a displacement between the design position of said first electronic component and the actual position of said first electronic component detected from first image data obtained by imaging the surface of said board, and holding said displacement as first displacement data and correcting, based on said first displacement data, design data to be used for processing said board after said board is covered with said first insulating layer to form a wiring pattern connected to said first electrical component. See, for example, page 11, lines 2-6, of the application. Per the above, Leedy discloses neither calculating a displacement nor

correcting design data to be used for processing said board **after** said board is covered with said first insulating layer to form a wiring pattern connected to said first electrical component.

Claim 19 also recites forming via holes in the first insulating layer in accordance with the corrected design data, thereby compensating for the actual location of the displaced first electronic component in a subsequent layer. Leedy fails to disclose this feature.

Per the above, in Leedy, the CAD means then works out an interconnect strategy, forming a net list of interconnect patterns to bypass defective ICLUs by interconnecting defect-free ICLUs from a stock of redundant ICLUs. See column 5, lines 37-43, of Leedy. Thus, Leedy wires a **redundant** ICLU to replace an ICLU that is defective. Leedy never forms via holes to compensate for the **actual location** of a **displaced** electronic component. Kulkarni also fails to disclose this feature.

The above comments are specifically directed to claim 19. However, it is respectfully submitted that the comments would be helpful in understanding various differences of various other claims over the cited reference.

In view of the above, it is respectfully submitted that the rejection is overcome.

VI. CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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